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Diagnosis and Treatment of Acute Appendicitis
2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines

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IMPORTANCE Acute appendicitis is the most common abdominal surgical emergency worldwide and a leading cause of emergency hospital admissions and operations. Despite its frequency, substantial variability persists in diagnosis and management across patient populations and health care settings.

OBJECTIVE To provide updated, evidence-based recommendations for the diagnosis and treatment of acute appendicitis in adults, children, pregnant women, older patients (aged ≥65 years), immunocompromised individuals, and patients with obesity (body mass index ≥30), developed by the World Society of Emergency Surgery (WSES) using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach.

EVIDENCE REVIEW A systematic literature search was performed in MEDLINE, Embase, Scopus, Web of Science, and the Cochrane Library to identify relevant studies published until May 2025. Eligible designs included randomized clinical trials, observational studies, systematic reviews, and meta-analyses. Risk of bias was assessed with design-appropriate tools (RoB-2, ROBINS-I, QUADAS-2). Evidence profiles and evidence-to-decision frameworks were generated for each of 19 key clinical questions. The certainty of evidence was rated as high, moderate, low, or very low. Recommendations were classified as strong or conditional (weak) according to GRADE.

FINDINGS Six key clinical domains were addressed across 19 questions. Thirty-five recommendations were formulated. Key findings include: (1) clinical risk scores and imaging improve diagnostic accuracy and reduce negative appendectomy rates; (2) nonoperative management with antibiotics is safe and effective in selected patients with uncomplicated appendicitis, with recommendations tailored for specific populations; (3) appendectomy for uncomplicated appendicitis may be safely delayed within 24 hours without increased risk of adverse outcomes; (4) laparoscopic appendectomy remains the standard surgical approach; (5) postoperative antibiotic therapy should be limited to short courses (2-3 days) in complicated disease; and (6) follow-up strategies are essential after nonoperative management of complicated appendicitis with abscess to detect neoplasms.

CONCLUSIONS AND RELEVANCE The 2025 WSES Jerusalem Guidelines provide updated, evidence-based recommendations for the diagnosis and treatment of acute appendicitis with the aim to standardize practice, reduce unwarranted variability, and support safe, effective, and patient-centered care across diverse populations and health care systems. Their implementation should be adapted to local resources.

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Supplemental content

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With an annual incidence of about 100 per 100 000 population, acute appendicitis is the most common abdominal surgical emergency worldwide.[1-4] Although mortality is low in high-income countries, it remains relevant in resource-limited settings.[5,6] Acute appendicitis is generally classified as uncomplicated or complicated (**Table 1**).[7-12]

The 2025 update of the World Society of Emergency Surgery (WSES) Jerusalem Guidelines provides evidence-based recommendations to support clinicians and health care systems in delivering safe, effective, and standardized care for patients with acute appendicitis globally (**Figure**).

Table 1. Definitions

Definition	Explanation
Uncomplicated acute appendicitis	Inflammation of the appendix with hyperemia and/or phlegmon
Complicated acute appendicitis[a]	Inflammation of the appendix with extended gangrene/necrosis, perforation, abscess, or diffuse peritonitis

[a] Appendicolith is a known risk factor for perforation and for failure of nonoperative management, but it is not a defining criterion for complicated appendicitis, as its presence does not invariably indicate perforation, abscess, or peritonitis.

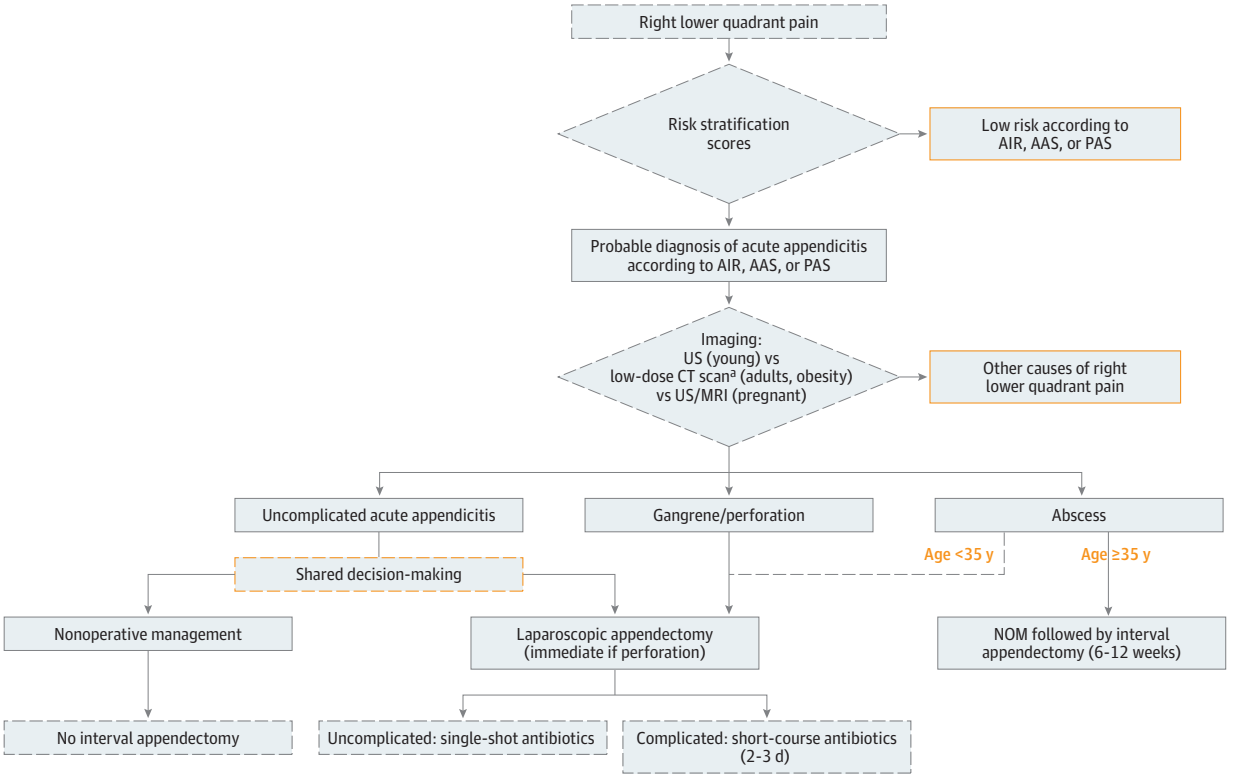
Methods

This article is based on previously published studies and does not contain any new studies with human participants or animals performed by any of the authors. Ethical approval and informed consent were therefore not required.

The guidelines were developed according to the AGREE II instrument.[13] The project was conducted under the auspices of the WSES, that nominated the guideline chairs (M.P. and F.C.). The panel of experts' group included 41 experts in the field of acute appendicitis from the WSES Board of Directors and authors of relevant studies in the field. A specialized evidence review team of 6 experts in conducting literature search and systematic reviews (M.P., M.C., B.D., P.F., F.P., A.B.) and 2 methodology supervisors (C.G. and E.A.) provided methodological oversight.

Research topics and key questions (KQs) were selected through a structured prioritization process using a modified Delphi methodology. An initial brainstorming phase identified 8 candidate topics, evaluated

Figure. Diagnosis and Treatment of Acute Appendicitis: The 2025 Edition of the World Society of Emergency Surgery (WSES) Jerusalem Guidelines


Right lower quadrant pain
Risk stratification scores
Low risk according to AIR, AAS, or PAS
Probable diagnosis of acute appendicitis according to AIR, AAS, or PAS
Imaging: US (young) vs low-dose CT scan[a] (adults, obesity) vs US/MRI (pregnant)
Other causes of right lower quadrant pain
Uncomplicated acute appendicitis
Gangrene/perforation
Abscess
Age <35 y
Age ≥35 y
Shared decision-making
Nonoperative management
Laparoscopic appendectomy (immediate if perforation)
NOM followed by interval appendectomy (6-12 weeks)
No interval appendectomy
Uncomplicated: single-shot antibiotics
Complicated: short-course antibiotics (2-3 d)

Rectangles indicate diagnostic or therapeutic steps, whereas diamonds represent decision nodes based on clinical risk stratification or imaging findings. Orange rectangles identify patients who exit the algorithm because acute appendicitis is considered unlikely and an alternative diagnosis should be pursued. Dashed outlines denote optional, conditional, or context-dependent pathways, where management should be individualized according to patient-specific factors (age, sex, pregnancy status, body mass index, comorbidities) and shared decision-making. AAS indicates Adult Appendicitis Score; AIR, Appendicitis Inflammatory Response score; CT, computed tomography; MRI, magnetic resonance imaging; NOM, nonoperative management; PAS, Pediatric Appendicitis Score; US, ultrasound.

[a] Less than 2 to 3 millisieverts.

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Table 2. Summary of the Research Questions and Recommendations of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis

PICO question	Recommendation	Strength of recommendation	Certainty of evidence
Topic 1: diagnosis			
In patients with pain in the right iliac fossa and suspected acute appendicitis, is the use of risk stratification scores based on clinical findings and laboratory tests (no imaging) for guiding the diagnostic workup preferable to traditional clinical, laboratory, and imaging investigations, in terms of diagnostic accuracy?	Recommendation 1. We suggest using risk stratification scores based on clinical findings and laboratory tests (AIR, AAS, and PAS) to guide the initial diagnostic workup in patients with right iliac fossa pain to rule out acute appendicitis (low-risk patients) and identify intermediate-risk patients who need imaging for diagnosis or active observation. In unclear presentations, CT imaging remains the diagnostic standard because of its higher sensitivity.	Conditional (weak)	Moderate
In patients with pain in the right iliac fossa and suspected acute appendicitis, is the use of risk stratification scores based on clinical findings and laboratory tests (no imaging) preferable to traditional clinical, laboratory, and imaging investigations, in identifying low suspicion of appendicitis?	Recommendation 2. We suggest using risk stratification scores based on clinical and laboratory findings (AIR, AAS, and PAS) to identify patients at low probability for acute appendicitis and to guide the need for further imaging or observation.	Conditional (weak)	Low
In patients with pain in the right iliac fossa and suspected acute appendicitis needing imaging diagnostics, is CT scan preferable to US in terms of diagnostic accuracy?	Recommendation 3.1. We suggest using risk stratification scores based on clinical and laboratory findings (AIR score, AAS) combined with US as an alternative to low-radiation-dose protocol CT as the initial diagnostic workup for adults with suspected acute appendicitis (based on risk stratification scores) in settings where CT is not readily available or when minimizing radiation exposure is a priority. Where available, low-dose CT (protocol <2-3 mSv) should be considered the preferred imaging modality.	Conditional (weak)	Moderate
	Recommendation 3.2. We suggest using US as the first-line imaging test for children and adolescents with suspected acute appendicitis, reserving low-radiation-dose CT for cases in which US is nondiagnostic or clinical suspicion remains high.	Conditional (weak)	Moderate
	Recommendation 3.3. We suggest using CT, preferably a low-radiation-dose protocol, rather than US as the primary imaging test for adults with obesity who present with suspected acute appendicitis.	Conditional (weak)	Low
	Recommendation 3.4. We suggest using CT, preferably a low-radiation-dose protocol, rather than US as the primary imaging test in older patients with suspected acute appendicitis.	Conditional (weak)	Very low
In pregnant patients with pain in the right iliac fossa and suspected acute appendicitis needing imaging diagnostics, is MRI scan preferable to US in terms of diagnostic accuracy?	Recommendation 4. We suggest obtaining MRI in pregnant patients whenever the initial US finding is negative or inconclusive and clinical suspicion of appendicitis persists.	Conditional (weak)	Moderate
Topic 2: nonoperative management of uncomplicated acute appendicitis			
In patients with uncomplicated acute appendicitis, is nonoperative treatment with antibiotics preferable to laparoscopic appendectomy in terms of which outcomes?	Recommendation 5.1. We suggest the use of antibiotics as an alternative to appendectomy for the treatment of uncomplicated appendicitis in adult patients, provided there is appropriate clinical monitoring and shared decision-making.	Conditional (weak)	Moderate
	Recommendation 5.2. We suggest the use of antibiotics as an alternative to appendectomy for the treatment of uncomplicated appendicitis in children, provided there is appropriate clinical monitoring and shared decision-making.	Conditional (weak)	Moderate
	Recommendation 5.3. We suggest performing laparoscopic appendectomy as the preferred treatment for uncomplicated acute appendicitis in pregnant patients. Nonoperative management with antibiotics may be considered as an alternative when surgery poses increased risks or is not immediately available, although the evidence supporting this approach is very uncertain.	Conditional (weak)	Very low
	Recommendation 5.4. We suggest performing appendectomy as the preferred treatment for uncomplicated acute appendicitis in older patients. Nonoperative management with antibiotics may be considered as an alternative, particularly in those with significant comorbidities and high surgical risk.	Conditional (weak)	Very low
In patients with uncomplicated acute appendicitis treated nonoperatively, is outpatient treatment preferable to in-hospital treatment in terms of which outcomes?	Recommendation 6. We suggest offering outpatient management with antibiotics as an option for patients with uncomplicated acute appendicitis, provided there is proper follow-up and access to medical services in case of clinical deterioration.	Conditional (weak)	Moderate

(continued)

by the expert panel in a first Delphi round using a 5-point Likert scale. A 70% agreement threshold, defined as 70% of scores or more being 4 or 5, was required for inclusion. Six topics reached consensus. Within these domains, candidate questions that were population, intervention, comparison, and outcome (PICO) formulated were refined across 3 additional Delphi rounds, during which panelists assessed clinical relevance, feasibility, and applicability. Nineteen PICO-compliant KQs were identified. Outcomes were prioritized according to their importance for decision-making using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach.[14]

A systematic literature search was performed in MEDLINE, Embase, Scopus, Web of Science, and the Cochrane Library. The sys-

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Table 2. Summary of the Research Questions and Recommendations of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis (continued)

PICO question	Recommendation	Strength of recommendation	Certainty of evidence
In patients with uncomplicated acute appendicitis treated nonoperatively, are follow-up measures preferable to no follow-up measures in terms of safety and efficacy?	Recommendation 7.1. We suggest against routine follow-up beyond 30 d in adult patients with uncomplicated acute appendicitis treated nonoperatively. Follow-up may be considered on a case-by-case basis, especially in patients with persistent or recurrent symptoms, diagnostic uncertainty, or risk factors for malignancy.	Conditional (weak)	Very low
	Recommendation 7.2. We suggest against routine follow-up beyond 30 d in children with uncomplicated acute appendicitis treated nonoperatively. Follow-up may be considered on a case-by-case basis, especially in patients with persistent or recurrent symptoms or diagnostic uncertainty.	Conditional (weak)	Very low
In patients with uncomplicated acute appendicitis initially treated nonoperatively, is interval appendectomy preferable to no interval appendectomy in terms of safety and efficacy?	Recommendation 8. We suggest not performing routine interval appendectomy in adult patients with uncomplicated acute appendicitis initially managed nonoperatively, in the absence of persistent or recurrent symptoms.	Conditional (weak)	Low
Topic 3: timing of appendectomy and in-hospital delay			
In patients with uncomplicated acute appendicitis who have been selected for surgical management, is immediate laparoscopic appendectomy preferable to laparoscopic appendectomy delayed up to 24 h in terms of safety and efficacy?	Recommendation 9.1. We recommend performing laparoscopic appendectomy within 24 h of hospital admission in adult patients with uncomplicated acute appendicitis who have been selected for surgical management.	Strong	Moderate
	Recommendation 9.2. We recommend performing laparoscopic appendectomy within 24 h of hospital admission in children with uncomplicated acute appendicitis who have been selected for surgical management.	Strong	Moderate
Topic 4: surgical treatment			
In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, is suction alone preferable to lavage and suction of the peritoneal cavity in terms of safety and efficacy?	Recommendation 10.1. We suggest using suction of the contaminated fluids alone, rather than lavage and suction of the peritoneal cavity, during laparoscopic appendectomy for adult patients with complicated acute appendicitis.	Conditional (weak)	Moderate
	Recommendation 10.2. We suggest using suction of the contaminated fluids alone, rather than lavage and suction of the peritoneal cavity, during laparoscopic appendectomy in children with complicated acute appendicitis.	Conditional (weak)	Moderate
In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, is the use of abdominal drains preferable to the avoidance of abdominal drains in terms of safety and efficacy?	Recommendation 11.1. We suggest avoiding routine use of abdominal drains in adults undergoing laparoscopic appendectomy for complicated acute appendicitis.	Conditional (weak)	Low
	Recommendation 11.2. We suggest avoiding routine use of abdominal drains in children undergoing laparoscopic appendectomy for complicated acute appendicitis.	Conditional (weak)	Very low
In patients with pain in the right iliac fossa and suspected appendicitis undergoing exploratory laparoscopy with no intraoperative clear signs of acute appendicitis, is the removal of the appendix preferable to leaving the appendix in situ in terms of safety and efficacy?	Recommendation 12. We suggest removing a macroscopically normal appendix during diagnostic laparoscopy for suspected appendicitis when no other intra-abdominal pathology is identified that justifies the patient's clinical presentation.	Conditional (weak)	Very low

(continued)

tematic literature search was first performed in January 2025 and subsequently updated in May 2025. The GRADE methodology was applied to assess the certainty of evidence and the strength of recommendations.[14,15] The certainty of evidence was rated as high, moderate, low, or very low, considering the risk of bias, imprecision, inconsistency, indirectness, and publication bias. Recommendations were classified as strong or conditional based on the GRADE domains. Draft recommendations and their evidence-to-decision frameworks were discussed in structured online consensus meetings and refined through iterative rounds until full agreement was achieved (**Table 2** and **Table 3**).

Recommendations

Supplementary material for each recommendation includes the complete evidence synthesis, evidence profiles, and evidence-to-decision frameworks developed according to the GRADE approach (eAppendixes 1-19 in the Supplement).

Topic 1: Diagnosis

KQ 1

In patients with pain in the right iliac fossa and suspected acute appendicitis, is the use of risk stratification scores based on clinical findings and laboratory tests (no imaging) for guiding the diagnostic workup preferable to traditional clinical, laboratory, and imaging investigations, in terms of diagnostic accuracy?

Recommendation 1 | We suggest using risk stratification scores based on clinical findings and laboratory tests (Appendicitis Inflammatory Response [AIR] score, Adult Appendicitis Score [AAS], and Pediatric Appendicitis Score [PS]) to guide the initial diagnostic workup in patients with right iliac fossa pain to rule out acute appendicitis (low-risk

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Table 2. Summary of the Research Questions and Recommendations of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis (continued)

PICO question	Recommendation	Strength of recommendation	Certainty of evidence
Topic 5: management of perforated appendicitis with abscess			
In patients with complicated acute appendicitis with periappendicular abscess, is early laparoscopic appendectomy preferable to initial nonoperative management and interval appendectomy in terms of safety and efficacy?	Recommendation 13.1. We suggest early laparoscopic appendectomy in adult patients <35 y with complicated acute appendicitis and periappendicular abscess. Initial nonoperative management followed by interval appendectomy (between 6 and 12 wk after initial nonoperative management) is suggested as an alternative in settings lacking access to adequate laparoscopic expertise or resources for emergency implementation. Conversely, in patients aged 35 y or older, we suggest against early appendectomy because of the increased risk of underlying appendiceal neoplasm (up to 14.3%).	Conditional (weak)	Moderate
	Recommendation 13.2. We suggest early laparoscopic appendectomy in children with complicated acute appendicitis with periappendicular abscess. Initial nonoperative management followed by interval appendectomy (between 6 and 12 wk after initial nonoperative management) is suggested as an alternative to early appendectomy in settings lacking access to adequate laparoscopic expertise or resources for emergency implementation.	Conditional (weak)	Moderate
In patients with complicated acute appendicitis with periappendicular abscess initially treated nonoperatively, is interval appendectomy preferable to no interval appendectomy in terms of safety and efficacy?	Recommendation 14.1. We recommend performing interval appendectomy between 6 and 12 wk after initial nonoperative management in adult patients 35 y or older with complicated acute appendicitis and periappendicular abscess to reduce the risk of missed appendiceal neoplasm.	Strong	Moderate
	Recommendation 14.2. We suggest against routine interval appendectomy in children with complicated acute appendicitis and periappendicular abscess initially treated nonoperatively.	Conditional (weak)	Low
Topic 6: perioperative antibiotic therapy			
In patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, are preoperative antibiotics preferable to no preoperative antibiotics in terms of safety and efficacy?	Recommendation 15.1. We recommend administering a single dose of preoperative prophylactic antibiotics to adult patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy to reduce the risk of surgical site infections and postoperative intra-abdominal abscess. We suggest against administering antibiotics while awaiting surgery beyond single-dose prophylaxis, as no additional benefit has been demonstrated in reducing the risk of appendiceal perforation and surgical site infections when appendectomy is performed within 24 h.	Strong	Moderate
	Recommendation 15.2. We suggest administering a single dose of preoperative prophylactic antibiotics to children with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, considering the potential benefit in preventing infectious complications.	Conditional (weak)	Low
In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, are preoperative antibiotics preferable to no preoperative antibiotics in terms of safety and efficacy?	Recommendation 16.1. We recommend the administration of preoperative prophylactic antibiotics in adult patients with complicated acute appendicitis undergoing laparoscopic appendectomy to reduce the risk of surgical site infections. We recommend administering therapeutic antibiotics while awaiting appendectomy in adult patients with complicated acute appendicitis, particularly when immediate surgery is not feasible.	Strong	High
	Recommendation 16.2. We recommend administering preoperative prophylactic antibiotics in children with complicated acute appendicitis undergoing laparoscopic appendectomy to reduce the risk of surgical site infections. We recommend administering therapeutic antibiotics while awaiting appendectomy in children with complicated acute appendicitis, particularly when immediate surgery is not feasible.	Strong	Moderate
In patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, are postoperative antibiotics preferable to no postoperative antibiotics in terms of safety and efficacy?	Recommendation 17.1. In adult patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, we suggest against administering postoperative antibiotics.	Conditional (weak)	Low
	Recommendation 17.2. In children with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, we make no recommendation regarding the use of postoperative antibiotics because of very low certainty of evidence.	No recommendation	Very low
In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, are postoperative antibiotics preferable to no postoperative antibiotics in terms of safety and efficacy?	Recommendation 18.1. In adult patients with complicated acute appendicitis undergoing laparoscopic appendectomy, we recommend the administration of postoperative antibiotics to reduce the incidence of surgical site infections.	Strong	Moderate
	Recommendation 18.2. In children with complicated acute appendicitis undergoing laparoscopic appendectomy, we suggest the administration of postoperative antibiotics to reduce the incidence of surgical site infections.	Conditional (weak)	Low
In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, is a short course of antibiotic therapy (2-3 d) preferable to a longer course (5-7 d) after source control in terms of safety and efficacy?	Recommendation 19.1. We suggest using a short course of postoperative antibiotics (2-3 d) instead of a longer course (5-7 d) after adequate source control in adult patients with complicated acute appendicitis submitted to laparoscopic appendectomy.	Conditional (weak)	Moderate
	Recommendation 19.2. We suggest using a short course of postoperative antibiotics (2-3 d) instead of a longer course (5-7 d) after adequate source control in children with complicated acute appendicitis submitted to laparoscopic appendectomy.	Conditional (weak)	Moderate

Abbreviations: AAS, Adult Appendicitis Score; AIR, Appendicitis Inflammatory Response score; CT, computed tomography; MRI, magnetic resonance imaging; PAS, Pediatric Appendicitis Score; PICO, population, intervention, comparison, and outcome; US, ultrasound.

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Table 3. Summary of GRADE Assessment of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis

KQ	Balance of benefit and harm	Values and preferences	Equity	Acceptability and feasibility
1	Risk stratification scores can reduce unnecessary imaging and surgery in low-risk patients and help identify intermediate-risk cases that may benefit from imaging or observation. In high-risk or unclear presentations, CT imaging remains superior in diagnostic accuracy. Using risk scores also allows timely identification and management of high-risk patients, potentially preventing complications from delayed treatment.	Most patients value avoiding unnecessary testing and surgery. Preferences may vary with risk tolerance and availability of imaging.	The use of stratification scores may improve access to standardized diagnosis where imaging is limited. However, there are limited data for subgroups (older, pregnant, and immunocompromised patients and patients with obesity).	Risk stratification scores are simple, widely used, and based on routine clinical and laboratory data, making them easily implementable. No special training is required.
2	Risk stratification scores help identify patients at low risk safely, reducing overdiagnosis and overtreatment.	Patients prefer avoiding unnecessary imaging or surgery when appendicitis can be confidently ruled out with simple scores.	A risk score stratification strategy can be widely implemented, even in settings with limited access to imaging. However, evidence is sparse for key subgroups, such as older, pregnant, and immunocompromised patients, and patients with obesity.	Risk scores are already in use in many settings. Their ease of application makes them acceptable for routine clinical decision-making. Risk stratification based on history, examination, and laboratory results is feasible in both high- and low-resource settings. Their implementation in clinical practice does not require advanced infrastructure or expertise.
3	For adults, the desirable effects of CT scan may outweigh the undesirable ones. Benefit of CT scan include substantially fewer missed diagnoses and a lower NAR. Harm included radiation exposure. Modern low-dose CT (<2-3 mSv) mitigates radiation exposure. For children, the benefit of CT included markedly fewer missed diagnoses and slightly higher specificity, but in children, the ionizing radiation exposure is a major harm. As US already yields acceptable accuracy for children and avoids radiation, the benefit-harm balance favors starting with US, adding CT selectively. For patients with obesity, higher sensitivity of CT reduces the risk of missed appendicitis. Radiation exposure is less concerning in older patients; contrast nephropathy remains a consideration.	Most patients are likely to value avoiding unnecessary surgery and diagnostic delays more than the small additional risk of radiation, but some may prioritize minimizing radiation exposure. In children, parents and clinicians generally prioritize diagnostic certainty but also strongly value radiation avoidance.	Broader CT use could exacerbate disparities where scanners are scarce. Low-dose CT (<2-3 mSv) does not create new equity concerns compared with standard CT. A US-first strategy promotes equity where CT scanners are scarce while still allowing CT when needed. CT is costlier and may be less available in some settings; however, repeat or second-line imaging after an inconclusive ultrasound can consume similar resources. Despite the favorable effect estimates for CT, the panel opted for a conditional recommendation in favor of a US-first strategy combined with risk scores, as an acceptable alternative to CT in adult patients.	Acceptability may be high among surgeons and radiologists who value diagnostic gains in adults. It may be lower among clinicians who are concerned about radiation or costs. For children, acceptability may be high among pediatric surgeons, radiologists, and parents.
4	The potential benefit of MRI includes an increase in sensitivity from 0.47 to 0.86 and a maintained high specificity (0.94), thereby reducing the risk of missed appendicitis and potential complications due to diagnostic delay. Potential harm includes higher cost, longer acquisition time, and possible claustrophobia. Net benefit favors MRI when a US is nondiagnostic.	Pregnant patients, gynecologists, surgeons, and radiologists value radiation avoidance and diagnostic certainty. Most will therefore prefer MRI over additional US or CT once US is inconclusive.	MRI availability and cost vary. Conditional wording accommodates centers lacking timely MRI access. No special equipment beyond routine 1.5-T or 3-T scanners is required. This recommendation may widen disparities where MRI is scarce.	High among surgeons, gynecologists, radiologists, and patients. Conditional grade reflects resource variability and limited comparative evidence. This recommendation should not lead to clinically significant delays in diagnosis or treatment solely to obtain MRI.
5	Antibiotic treatment avoids surgical risks and the immediate recovery period associated with appendectomy. However, it carries a 15%-20% risk of recurrence and the potential for subsequent appendectomy. Patient values and preferences play a critical role in decision-making. In pregnant patients, the foremost concern is the risk of preterm labor associated with a persisting infection, particularly in the first and second trimesters. Additional potential harm includes abscess formation and complications if nonoperative treatment fails. While antibiotic management may avoid the risks of anesthesia and surgery, especially in early pregnancy, these must be weighed carefully against the risks of delayed intervention. In the older population, nonoperative treatment may reduce the risk of surgical and anesthesia-related complications, wound infections, and prolonged recovery, which are more common in older patients with significant comorbidities.	Patients may prefer to avoid surgery if safe and effective alternatives are available. Some may prioritize immediate resolution with surgery to avoid the risk of recurrence. Parents often prefer nonsurgical options to avoid anesthesia and recovery time, though some may opt for surgery to prevent recurrence. Pregnant women typically prioritize noninvasive approaches to protect the fetus, valuing reduced surgical risks. Older patients often prioritize minimizing surgical risks due to frailty and multiple comorbidities.	Access to antibiotics and follow-up care is generally widespread in high-resource settings, suggesting minimal equity concerns; however, in low-resource environments, limited availability of antibiotics, imaging, and structured follow-up may represent a significant equity issue.	Nonoperative treatment with antibiotics is acceptable to both patients and clinicians when there is clear communication about risks, benefit, and recurrence possibilities. Especially for children, shared decision-making is critical to align with family preferences. Shared decision-making is also crucial in patients with limited life expectancy. The discussion about the choice between antibiotic therapy and appendectomy should be clearly documented in the medical records.

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Table 3. Summary of GRADE Assessment of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis (continued)

KQ	Balance of benefit and harm	Values and preferences	Equity	Acceptability and feasibility
6	Outpatient treatment reduces the number of appendectomies, is associated with fewer missed workdays, and demonstrates noninferior quality of life.	Patients with uncomplicated appendicitis may prefer outpatient management to avoid hospitalization and resume normal activities sooner.	Outpatient management may be more accessible in high-resource settings where follow-up is reliable. In low-resource settings, close monitoring may be challenging, increasing the risk of adverse outcomes.	Generally acceptable among patients and health care professionals, particularly when clear follow-up protocols are established.
7	Routine follow-up may lead to unnecessary investigations, anxiety, or costs without clear benefit in most patients.	Most patients are likely to value avoiding unnecessary medical visits and tests, especially when the risk of serious missed conditions is low. Preferences may vary in subgroups or may be based on symptom persistence. Parents typically prioritize minimizing invasive procedures and hospital visits for their children.	A case-by-case follow-up approach could reduce unnecessary health care utilization and improve equity by focusing resources on patients who are most likely to benefit.	The recommendation is likely acceptable to both patients and clinicians. For children, acceptability increases when families are clearly informed about what to do if symptoms recur or worsen.
8	Interval appendectomy may prevent recurrence and detect missed neoplasms early. However, it involves surgical morbidity (which is not adequately quantified), resource utilization, and risks associated with anesthesia and surgery. Benefit of interval appendectomy may not outweigh the harm for all patients, especially when symptoms are resolved.	Most patients likely value avoiding unnecessary surgery, anesthesia, recovery time, and potential complications. However, some individuals may strongly value preventing recurrence, especially if they are anxious about recurrence, or detecting incidental neoplasms early. The decision for interval appendectomy should be based on an individual risk-benefit assessment that also considers broader personal circumstances, including travel plans, insurance implications, and access to emergency care.	Avoiding routine surgery may improve access and reduce disparities, especially where surgical services are limited. Recurrent appendicitis might still burden patients in areas with poor access to emergency care. The avoidance of routine interval appendectomy probably increases equity, particularly by reducing unnecessary surgical interventions.	Most surgeons and patients are likely to accept a nonoperative, symptom-based approach to avoid overtreatment. Acceptability may be influenced by local surgical practices and medicolegal concerns. The intervention is acceptable to key stakeholders when clear protocols are in place. Moreover, nonoperative management with follow-up is feasible in most settings, particularly where outpatient monitoring and imaging are readily available.
9	In patients with uncomplicated acute appendicitis who have been selected for surgical treatment, appendectomy performed within 24 h minimizes the risk of perforation, SSIs, and reduces hospital stay compared with delayed surgery beyond 24 h. Importantly, no increase in complication rates has been observed when surgery is performed between 6 and 24 h vs within the first 6 h. These recommendations apply exclusively to patients with uncomplicated appendicitis. In cases of complicated appendicitis with diffuse peritonitis, prompt surgical intervention remains the standard of care.	Patients prioritize timely intervention to avoid prolonged symptoms. Surgeons generally favor early intervention within 24 h to optimize outcomes without the need for immediate emergency scheduling. Parents and caregivers often prioritize rapid resolution to avoid complications and minimize child discomfort.	Access to appendectomy within 24 h is achievable in most health care settings that have surgical capacity.	Highly acceptable and feasible among emergency surgeons and health care professionals.
10	Lavage offers no additional clinical benefit and may prolong surgery. Suction alone is associated with shorter operative time and a trend toward fewer reinterventions, with no significant difference in intra-abdominal abscess, SSI, morbidity, or readmission.	Patients (or parents) and surgeons are likely to value shorter, simpler procedures when safety and efficacy are comparable.	Suction alone may improve access and efficiency in resource-limited settings where operative time and consumables are critical constraints.	Suction alone is feasible in nearly all surgical settings. It is highly acceptable among surgeons, and may reduce unnecessary procedural steps.
11	Drains were associated with higher postoperative morbidity and increased SSI without apparent benefit in preventing intra-abdominal abscess. Operative time and hospital stay were longer in the drain group. No meaningful difference in readmission rates was found.	Patients and families generally prefer to avoid invasive devices when they offer no clear benefit. Avoiding drains aligns with preferences for fewer complications and shorter hospitalization and can be largely accepted by patients and surgeons.	Avoiding drains may reduce operative time, material use, and duration of hospitalization. This is feasible in all surgical settings. A no-drain strategy may reduce disparities by simplifying care and lowering costs and postoperative burden.	Adoption may depend on institutional norms.

(continued)

patients) and identify intermediate-risk patients who need imaging for diagnosis or active observation. In unclear presentations, computed tomography (CT) imaging remains the diagnostic standard because of its higher sensitivity. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

KQ 2

In patients with pain in the right iliac fossa and suspected acute appendicitis, is the use of risk stratification scores based on clinical findings and laboratory tests (no imaging) preferable to traditional clinical, laboratory, and imaging investigations, in identifying low suspicion of appendicitis?

Recommendation 2 | We suggest using risk stratification scores based on clinical and laboratory findings (AIR score, AAS, and PAS) to identify patients at low probability for acute appendicitis and to guide the need for further imaging or observation. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

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Table 3. Summary of GRADE Assessment of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis (continued)

KQ	Balance of benefit and harm	Values and preferences	Equity	Acceptability and feasibility
12	No consistent clinical benefit has been demonstrated for the removal of a macroscopically normal appendix. However, performing an appendectomy in such cases may simplify the diagnostic process in future episodes of right iliac fossa pain, as appendicitis can then be excluded. Conversely, leaving the appendix in situ may result in diagnostic uncertainty if symptoms recur, potentially leading to repeated imaging and additional investigations.	Patients are likely to value avoiding a surgical procedure when it does not confer clear clinical benefit and carries potential risks. Conversely, a subset of patients may prefer removal of the appendix to eliminate the small but possible risk of future appendicitis or neoplastic disease. Some surgeons may favor appendectomy in this setting due to concerns about missed subclinical pathology or potential medicolegal consequences in the event of symptom recurrence. The decision to remove a macroscopically normal appendix should be made through shared decision-making with the patient, considering the uncertain benefit and potential risks of the procedure.	Although removal of a macroscopically normal appendix may be feasible in many high-resource settings, the panel acknowledged that this approach could reduce equity, particularly in low- and middle-income countries, especially when laparoscopic surgery is unavailable.	Acceptance may vary depending on local practices and surgeon experience. Practice may vary by region or training background. With proper preoperative imaging and thorough intraoperative assessment, the need to remove a normal-looking appendix may be reduced.
13	In adults, interval appendectomy was associated with lower morbidity and fewer SSIs, whereas early appendectomy may reduce intra-abdominal abscesses. Unplanned bowel resection was more frequent with early surgery. No consistent differences in hospital stay or operative time were found. Overall, harm and benefit appear balanced. In children, early appendectomy reduced intra-abdominal abscesses (confirmed in RCTs), although the SSI rate was higher with early appendectomy. No apparent difference was found in overall postoperative morbidity, operative time, or conversion to open surgery. Interval strategy was associated with a recurrence rate of 16.7% during the waiting period.	Patients may value avoiding immediate surgery, especially if it carries increased risk of complications. The final decision must be based on shared decision-making, particularly where emergency laparoscopic appendectomy is not guaranteed. Families may prioritize rapid resolution with early surgery to minimize recurrence or rehospitalization.	Initial nonoperative treatment may reduce burden in resource-limited settings by avoiding urgent surgery, and it may be especially valuable where access to laparoscopy is limited. For children, early laparoscopic appendectomy requires operating room availability and pediatric surgical expertise, which may not be uniformly available.	Interval appendectomy can be acceptable to most clinicians and patients in centers with protocols and monitoring for nonoperative management. Early appendectomy may still be adequate based on patient choice, clinical presentation, or lack of follow-up feasibility.
14	The potential benefit of identifying malignancies early in adult patients 35 y or older (up to 14.3% tumor detection rate) may outweigh the risks of surgical complications (similar morbidity across groups), especially in older patients. In children, interval appendectomy reduces recurrence but is associated with higher complication rates and very low incidence of neoplasm (0.5%). For most children, the harm likely outweighs the benefit.	Patients may prioritize the reduction of long-term uncertainty and cancer risk. Shared decision-making is critical, especially in low-risk individuals. Conversely, for children, most parents and clinicians may prefer to avoid surgery unless recurrence occurs, particularly given the low tumor risk.	The need for follow-up imaging or interval surgery may limit access for patients in low-resource settings. For children, avoiding routine surgery may reduce burden on health care systems and families in low-resource settings.	Interval appendectomy is likely acceptable to patients and clinicians when cancer risk is considered relevant (adults 35 y or older). Conversely, avoiding unnecessary surgery is generally acceptable to both families and clinicians in children. Observation without surgery is acceptable and feasible in most pediatric care settings, provided there is appropriate follow-up. Preoperative assessment before interval appendectomy should include a CT scan to monitor the resolution of the abscess and colonoscopy to rule out right-sided colonic neoplasms, especially in adults 35 y or older.
15	In adults, the use of preoperative antibiotics is associated with a significant reduction in the risk of SSIs (OR, 0.40; 95% CI 0.26-0.61) and postoperative intra-abdominal abscess (OR, 0.55; 95% CI 0.25-1.18 in RCTs). No significant harm was reported. The balance favors the intervention. The evidence in children is limited and does not show statistically significant reductions in SSIs or postoperative intra-abdominal abscesses with preoperative antibiotics. However, given the low risks associated with a single dose and potential benefit in preventing rare but serious complications, the balance slightly favors the intervention.	Patients and surgeons would place a high value on avoiding SSIs and intra-abdominal abscesses and would accept a preoperative dose of antibiotics, which is routine in surgical practice. No variability in patient preferences is anticipated.	The implementation of this intervention is unlikely to exacerbate health inequities and may reduce postoperative complications, particularly in low-resource settings. Cost-effectiveness and treatment efficacy may vary across health care settings due to differences in antibiotic access, health care infrastructure, infection rates, and resource costs, potentially limiting the generalizability of findings across countries.	The intervention is consistent with standard perioperative prophylaxis guidelines and does not represent a significant departure from current clinical practice. No logistical or systemic barriers are anticipated.

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Table 3. Summary of GRADE Assessment of the 2025 Edition of the World Society of Emergency Surgery Jerusalem Guidelines on the Diagnosis and Treatment of Acute Appendicitis (continued)

KQ	Balance of benefit and harm	Values and preferences	Equity	Acceptability and feasibility
16	Preoperative antibiotics significantly reduce SSIs with no major associated harm, while the risk of antibiotic-related complications is minimal.	Most patients would value reduced risk of wound infections and complications. Clinicians also generally support evidence-based antibiotic use.	Preoperative antibiotics are low-cost and widely accessible, even in resource-limited settings. Cost-effectiveness and treatment efficacy may vary across health care settings because of differences in antibiotic access, health care infrastructure, infection rates, and resource costs, potentially limiting the generalizability of findings across countries.	Antibiotic prophylaxis is a well-established and widely accepted intervention. Single-dose preoperative antibiotics are simple to implement and standard in most health care settings. However, acceptability may vary more in settings with different antibiotic stewardship norms.
17	The lack of demonstrated benefit, combined with potential harm and costs, supports avoiding routine use of antibiotics postoperatively.	Most patients and parents would value avoiding unnecessary antibiotics if there is no proven benefit. However, we found limited evidence on pediatric or parental preferences regarding the use of postoperative antibiotics.	Unnecessary antibiotics may burden health systems, especially in low-resource settings. Routine antibiotic use increases direct costs and may prolong hospital stay.	Surgeons and patients are increasingly open to minimizing antibiotic use when appropriate. Not administering postoperative antibiotics is practical and easily implemented in most settings.
18	Postoperative antibiotics reduce SSIs, although evidence for intra-abdominal abscess is uncertain and imprecise. No clear harm was reported, but routine use must be balanced with potential resistance and costs.	Prevention of infections is likely highly valued by patients. Patients, parents, and clinicians are likely to value reduced risk of SSIs highly, and a short course of antibiotics is generally acceptable.	Appropriate antibiotic use may reduce disparities in infection outcomes, especially in settings with limited access to advanced surgical care.	The use of antibiotics postoperatively is a standard practice in many settings and widely accepted among clinicians. The recommendation aligns with current surgical practices and antimicrobial stewardship strategies. Administration of postoperative antibiotics is technically and logistically feasible in most clinical settings.
19	The balance favors short-course therapy because of similar or better clinical outcomes and improved resource use, despite low certainty for some outcomes.	Patients and clinicians would value avoiding unnecessary antibiotic exposure, minimizing hospital stay, and reducing costs, especially if this does not compromise safety.	A shorter antibiotic course is likely to increase equity by reducing hospitalization time and treatment costs.	Acceptability can be high among surgeons, infectious disease specialists, and patients, given the current trend toward minimizing antimicrobial use. Short-course treatment is feasible in all health care settings, although it requires clear clinical protocols and monitoring to ensure adequate source control before shortening antibiotic duration.

Abbreviations: CT, computed tomography; KQ, key question; MRI, magnetic resonance imaging; OR, odds ratio; NAR, negative appendectomy rate; RCTs, randomized clinical trials; SSIs, surgical site infections; US, ultrasound.

KQ 3

In patients with pain in the right iliac fossa and suspected acute appendicitis needing imaging diagnostics, is CT scan preferable to ultrasound scan (US) in terms of diagnostic accuracy?

Recommendation 3.1 | We suggest using risk stratification scores based on clinical and laboratory findings (AIR score, AAS) combined with US as an alternative to low-radiation-dose protocol CT as the initial diagnostic workup for adults with suspected acute appendicitis (based on risk stratification scores) in settings where CT is not readily available or when minimizing radiation exposure is a priority. Where available, low-dose CT (protocol <2-3 mSv) should be considered the preferred imaging modality. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

Recommendation 3.2 | We suggest using US as the first-line imaging test for children and adolescents with suspected acute appendicitis, reserving low-radiation-dose CT for cases in which US is nondiagnostic or clinical suspicion remains high. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

Recommendation 3.3 | We suggest using CT, preferably a low-radiation-dose protocol, rather than US as the primary imaging test for adults with obesity who present with suspected acute appendicitis. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

Recommendation 3.4 | We suggest using CT, preferably a low-radiation-dose protocol, rather than US as the primary imaging test in older patients with suspected acute appendicitis. *Strength of recommendation*: Conditional (Weak). *Certainty of evidence*: Very low.

KQ 4

In pregnant patients with pain in the right iliac fossa and suspected acute appendicitis needing imaging diagnostics, is magnetic reso-

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nance imaging (MRI) scan preferable to US in terms of diagnostic accuracy?

Recommendation 4 | We suggest obtaining MRI in pregnant patients whenever the initial US finding is negative or inconclusive and clinical suspicion of appendicitis persists. *Strength of recommendation:* Conditional (weak). *Certainty of evidence:* Moderate.

Topic 2: Nonoperative Management of Uncomplicated Acute Appendicitis

KQ 5

In patients with uncomplicated acute appendicitis, is nonoperative treatment with antibiotics preferable to laparoscopic appendectomy in terms of which outcomes?

Recommendation 5.1 | We suggest the use of antibiotics as an alternative to appendectomy for the treatment of uncomplicated appendicitis in adult patients, provided there is appropriate clinical monitoring and shared decision-making. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

Recommendation 5.2 | We suggest the use of antibiotics as an alternative to appendectomy for the treatment of uncomplicated appendicitis in children, provided there is appropriate clinical monitoring and shared decision-making. *Strength of recommendation*: Conditional (weak). *Certainty of evidence:* Moderate.

Recommendation 5.3 | We suggest performing laparoscopic appendectomy as the preferred treatment for uncomplicated acute appendicitis in pregnant patients. Nonoperative management with antibiotics may be considered as an alternative when surgery poses increased risks or is not immediately available, although the evidence supporting this approach is very uncertain. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Very low.

Recommendation 5.4 | We suggest performing appendectomy as the preferred treatment for uncomplicated acute appendicitis in older patients. Nonoperative management with antibiotics may be considered as an alternative, particularly in those with significant comorbidities and high surgical risk. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Very low.

KQ 6

In patients with uncomplicated acute appendicitis treated nonoperatively, is outpatient treatment preferable to in-hospital treatment in terms of which outcomes?

Recommendation 6 | We suggest offering outpatient management with antibiotics as an option for patients with uncomplicated acute appendicitis, provided there is proper follow-up and access to medical services in case of clinical deterioration. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

KQ 7

In patients with uncomplicated acute appendicitis treated nonoperatively, are follow-up measures preferable to no follow-up measures in terms of safety and efficacy?

Recommendation 7.1 | We suggest against routine follow-up beyond 30 days in adult patients with uncomplicated acute appendicitis treated nonoperatively. Follow-up may be considered on a case-by-case basis, especially in patients with persistent or recurrent symptoms, diagnostic uncertainty, or risk factors for malignancy. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Very low.

Recommendation 7.2 | We suggest against routine follow-up beyond 30 days in children with uncomplicated acute appendicitis treated nonoperatively. Follow-up may be considered on a case-by-case basis, especially in patients with persistent or recurrent symptoms or diagnostic uncertainty. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Very low.

KQ 8

In patients with uncomplicated acute appendicitis initially treated nonoperatively, is interval appendectomy preferable to no interval appendectomy in terms of safety and efficacy?

Recommendation 8 | We suggest not performing routine interval appendectomy in adult patients with uncomplicated acute appendicitis initially managed nonoperatively, in the absence of persistent or recurrent symptoms. *Strength of recommendation*: Conditional (Weak). *Certainty of evidence*: Low.

Topic 3: Timing of Appendectomy and In-Hospital Delay

KQ 9

In patients with uncomplicated acute appendicitis who have been selected for surgical management, is immediate laparoscopic appendectomy preferable to laparoscopic appendectomy delayed up to 24 hours in terms of safety and efficacy?

Recommendation 9.1 | We recommend performing laparoscopic appendectomy within 24 hours of hospital admission in adult patients with uncomplicated acute appendicitis who have been selected for surgical management. *Strength of recommendation*: Strong. *Certainty of evidence*: Moderate.

Recommendation 9.2 | We recommend performing laparoscopic appendectomy within 24 hours of hospital admission in children with uncomplicated acute appendicitis who have been selected for surgical management. *Strength of recommendation*: Strong. *Certainty of evidence*: Moderate.

Topic 4: Surgical Treatment

KQ 10

In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, is suction alone preferable to lavage and suction of the peritoneal cavity in terms of safety and efficacy?

Recommendation 10.1 | We suggest using suction of the contaminated fluids alone, rather than lavage and suction of the peritoneal cavity, during laparoscopic appendectomy for adult patients with complicated acute appendicitis. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

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Recommendation 10.2 | We suggest using suction of the contaminated fluids alone, rather than lavage and suction of the peritoneal cavity, during laparoscopic appendectomy in children with complicated acute appendicitis. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

KQ 11

In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, is the use of abdominal drains preferable to the avoidance of abdominal drains in terms of safety and efficacy?

Recommendation 11.1 | We suggest avoiding routine use of abdominal drains in adults undergoing laparoscopic appendectomy for complicated acute appendicitis. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

Recommendation 11.2 | We suggest avoiding routine use of abdominal drains in children undergoing laparoscopic appendectomy for complicated acute appendicitis. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Very low.

KQ 12

In patients with pain in the right iliac fossa and suspected appendicitis undergoing exploratory laparoscopy with no intraoperative clear signs of acute appendicitis, is the removal of the appendix preferable to leaving the appendix in situ in terms of safety and efficacy?

Recommendation 12 | We suggest removing a macroscopically normal appendix during diagnostic laparoscopy for suspected appendicitis when no other intra-abdominal pathology is identified that justifies the patient's clinical presentation. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Very low.

Topic 5: Management of Perforated Appendicitis With Abscess

KQ 13

In patients with complicated acute appendicitis with periappendicular abscess, is early laparoscopic appendectomy preferable to initial nonoperative management and interval appendectomy in terms of safety and efficacy?

Recommendation 13.1 | We suggest early laparoscopic appendectomy in adult patients younger than 35 years with complicated acute appendicitis and periappendicular abscess. Initial nonoperative management followed by interval appendectomy (between 6 and 12 weeks after initial nonoperative management) is suggested as an alternative in settings lacking access to adequate laparoscopic expertise or resources for emergency implementation. Conversely, in patients aged 35 years or older, we suggest against early appendectomy because of the increased risk of underlying appendiceal neoplasm (up to 14.3%). *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

Recommendation 13.2 | We suggest early laparoscopic appendectomy in children with complicated acute appendicitis with periappendicular abscess. Initial nonoperative management followed by interval appendectomy (between 6 and 12 weeks after initial nonoperative management) is suggested as an alternative to early appendectomy in settings lacking access to adequate laparoscopic expertise or resources for emergency implementation. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

KQ 14

In patients with complicated acute appendicitis with periappendicular abscess initially treated nonoperatively, is interval appendectomy preferable to no interval appendectomy in terms of safety and efficacy?

Recommendation 14.1 | We recommend performing interval appendectomy between 6 and 12 weeks after initial nonoperative management in adult patients 35 years or older with complicated acute appendicitis and periappendicular abscess to reduce the risk of missed appendiceal neoplasm. *Strength of recommendation*: Strong. *Certainty of evidence*: Moderate.

Recommendation 14.2 | We suggest against routine interval appendectomy in children with complicated acute appendicitis and periappendicular abscess initially treated nonoperatively. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

Topic 6: Perioperative Antibiotic Therapy

KQ 15

In patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, are preoperative antibiotics preferable to no preoperative antibiotics in terms of safety and efficacy?

Recommendation 15.1 | We recommend administering a single dose of preoperative prophylactic antibiotics to adult patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy to reduce the risk of surgical site infections and postoperative intra-abdominal abscess. We suggest against administering antibiotics while awaiting surgery beyond single-dose prophylaxis, as no additional benefit has been demonstrated in reducing the risk of appendiceal perforation and surgical site infections when appendectomy is performed within 24 hours. *Strength of recommendation*: Strong. *Certainty of evidence*: Moderate.

Recommendation 15.2 | We suggest administering a single dose of preoperative prophylactic antibiotics to children with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, considering the potential benefit in preventing infectious complications. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

KQ 16

In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, are preoperative antibiotics preferable to no preoperative antibiotics in terms of safety and efficacy?

Recommendation 16.1 | We recommend the administration of preoperative prophylactic antibiotics in adult patients with complicated acute appendicitis undergoing laparoscopic appendectomy to reduce the risk of surgical site infections. We recommend administering therapeutic antibiotics while awaiting appendectomy in adult patients with complicated acute appendicitis,

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particularly when immediate surgery is not feasible. *Strength of recommendation*: Strong. *Certainty of evidence*: High.

Recommendation 16.2 | We recommend administering preoperative prophylactic antibiotics in children with complicated acute appendicitis undergoing laparoscopic appendectomy to reduce the risk of surgical site infections. We recommend administering therapeutic antibiotics while awaiting appendectomy in children with complicated acute appendicitis, particularly when immediate surgery is not feasible. *Strength of recommendation*: Strong. *Certainty of evidence*: Moderate.

KQ 17

In patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, are postoperative antibiotics preferable to no postoperative antibiotics in terms of safety and efficacy?

Recommendation 17.1 | In adult patients with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, we suggest against administering postoperative antibiotics. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

Recommendation 17.2 | In children with uncomplicated acute appendicitis undergoing laparoscopic appendectomy, we make no recommendation regarding the use of postoperative antibiotics because of very low certainty of evidence. *Strength of recommendation*: No recommendation. *Certainty of evidence*: Very low.

KQ 18

In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, are postoperative antibiotics preferable to no postoperative antibiotics in terms of safety and efficacy?

Recommendation 18.1 | In adult patients with complicated acute appendicitis undergoing laparoscopic appendectomy, we recommend the administration of postoperative antibiotics to reduce the incidence of surgical site infections. *Strength of recommendation*: Strong. *Certainty of evidence*: Moderate.

Recommendation 18.2 | In children with complicated acute appendicitis undergoing laparoscopic appendectomy, we suggest the administration of postoperative antibiotics to reduce the incidence of surgical site infections. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Low.

KQ 19

In patients with complicated acute appendicitis undergoing laparoscopic appendectomy, is a short course of antibiotic therapy (2-3 days) preferable to a longer course (5-7 days) after source control in terms of safety and efficacy?

=Recommendation 19.1 | We suggest using a short course of postoperative antibiotics (2-3 days) instead of a longer course (5-7 days) after adequate source control in adult patients with complicated acute appendicitis submitted to laparoscopic appendectomy. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

Recommendation 19.2 | We suggest using a short course of postoperative antibiotics (2-3 days) instead of a longer course (5-7 days) after adequate source control in children with complicated acute appendicitis submitted to laparoscopic appendectomy. *Strength of recommendation*: Conditional (weak). *Certainty of evidence*: Moderate.

Discussion

Several research priorities emerge from the current evidence base. Diagnostic stratification tools require validation in populations that remain understudied, including pregnant women, older individuals, and immunocompromised patients. Their performance in these groups is unclear, and it is unknown whether stratified diagnostic pathways improve accuracy or resource use. Imaging strategies also warrant further investigation. The optimal approach in pregnant patients and individuals with obesity remains uncertain, particularly regarding radiation exposure, diagnostic precision, and feasibility in settings with limited imaging capacity. Management pathways present additional gaps. In children with uncomplicated appendicitis, the safety of ambulatory nonoperative treatment has not been defined. In pregnant patients, evidence does not allow precise estimation of maternal or fetal risks associated with nonoperative management. In older individuals, outcomes after antibiotic-first treatment and the true incidence of underlying malignancy require clarification. Follow-up after nonoperative management represents a further priority. The effectiveness of structured surveillance in reducing missed neoplasms is unknown, particularly in older or high-risk patients. Long-term outcomes after nonoperative treatment of complicated appendicitis in children also remain insufficiently described. Evidence supporting short-course antibiotic regimens in patients with significant comorbidities and in resource-constrained settings is limited, and key outcomes such as readmission, reoperation, and duration of hospitalization are inconsistently reported. Most studies assessing perioperative antibiotic duration were conducted during the era of open surgery; trials reflecting current laparoscopic practice are needed. Many existing data originate from high-income regions, raising concerns about applicability to low-resource environments. Addressing these gaps is consistent with the GRADE approach, which requires attention to indirectness, applicability, and variability in values and resources when formulating recommendations.

Conclusions

The 2025 WSES Jerusalem Guidelines are intended to support clinicians in delivering safe, effective, and standardized care and to reduce unwarranted variability in clinical practice for patients with acute appendicitis. Implementation should be adapted to local resources and system constraints.

ARTICLE INFORMATION

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